

I claim:

1. A sound absorbing material, comprising:

an organic man-made fiber;

an inorganic man-made fiber;

a co-binder; and,

a cellulose material;

said organic man-made fiber, said inorganic man-made fiber, said co-binder and said cellulose material defining a homogeneous sound absorbing material.

2. The sound absorbing material of claim 1, said organic man-made fiber being polyester.

3. The sound absorbing material of claim 2, said polyester fiber being between about 5 millimeters and 60 millimeters in length.

4. The sound absorbing material of claim 2, said polyester being virgin polyester.

5. The sound absorbing material of claim 2, said polyester being reclaimed polyester.
6. The sound absorbing material of claim 2, said organic man-made fiber being up to about 70 percent by weight of said sound absorbing material.
7. The sound absorbing material of claim 6, said organic man-made fiber being about 19 percent by weight of said sound absorbing material.
8. The sound absorbing material of claim 2, said polyester being between about 1.2 and 15 denier.
9. The sound absorbing material of claim 1, said inorganic man-made fiber being fiberglass.
10. The sound absorbing material of claim 9, said fiberglass being rotary fiberglass having an average diameter of between about 4 and 8 microns.
11. The sound absorbing material of claim 9, said fiberglass being flame attenuated fiberglass having an

average diameter of between about 4 and 8 microns.

12. The sound absorbing material of claim 9, said fiberglass being textile fiberglass.

13. The sound absorbing material of claim 9, said fiberglass being up to 50 percent by weight of said sound absorbing material.

14. The sound absorbing material of claim 13, said fiberglass being about 35 percent by weight of said sound absorbing material.

15. The sound absorbing material of claim 9, said fiberglass being between about 12 and 130 millimeters in length and having a diameter of between about 5 microns and 12 microns.

16. The sound absorbing material of claim 1, said co-binder being between about 10 percent to about 40 percent by weight of said sound absorbing material.

17. The sound absorbing material of claim 16, said co-binder being about 28 percent by weight of said sound

absorbing material.

18. The sound absorbing material of claim 16, said co-binder being a thermo-setting resin.

19. The sound absorbing material of claim 18, said thermo-setting resin being a phenolic resin.

20. The sound absorbing material of claim 19, said phenolic resin being phenol formaldehyde.

21. The sound absorbing material of claim 16, said co-binder selected from the group consisted of epoxy resin, vinyl esters, urethane silicones, cross-linkable plastic polymers, cross-linkable rubber polymers, powder, latex, oil base, solvent base, and liquid polymer.

22. The sound absorbing material of claim 1, said cellulose material being less than about 50 percent by weight of said sound absorbing material.

23. The sound absorbing material of claim 22, said cellulose material being about 19 percent by weight of said

sound absorbing material.

24. The sound absorbing material of claim 1, said cellulose material containing about 15 percent by weight of said Kaolin clay.

25. The sound absorbing material of claim 23, said cellulose material defined by a plurality of strands having a diameter of about .03 millimeters and about .08 millimeters in length.

26. The sound absorbing material of claim 1, further comprising a polyfilm layer affixed thereto.

27. The sound absorbing material of claim 26, said polyfilm layer being a porous polyolefin layer.

28. The sound absorbing material of claim 1 further comprising a preselected amount of boric acid.

29. The sound absorbing material of claim 1 further comprising a face cloth.

30. The sound absorbing material of claim 29, said face

cloth formed of polyester.

31. The sound absorbing material of claim 29, said face cloth formed of about 70 percent polyester and about 30 percent rayon.

32. A sound absorbing material, comprising:

a homogeneous mixture of:

a plurality of polyester fibers;

a plurality of textile fiberglass fibers;

a thermo-setting co-binder;

a plurality of cellulose fiber materials; and,

at least one layer of a porous polyfilm.

33. The sound absorbing material of claim 32, said porous polyfilm being a thermo-setting plastic.

34. The sound absorbing material of claim 32, said porous polyfilm being formed of polypropylene.

35. The sound absorbing material of claim 32, said porous

polyfilm being formed of polyethylene.

36. The sound absorbing material of claim 32, said porous polyfilm having at least one acoustical flow-through opening sized between about .25 percent and 50 percent of the surface area of the polyfilm.

37. A sound absorbing material, comprising:

a homogeneous mixture including:

a plurality of polyester fibers;

a plurality of textile fiberglass fibers;

a thermo-setting co-binder;

a plurality of cellulose fiber materials;

a preselected amount of boric acid; and,

at least one layer of a porous polyolefin film.

38. A process for making a sound absorbing material including the steps of:

metering out man-made organic and inorganic fibers

onto a conveyor belt and forming an uncured mat;

metering out a co-binder and fibrous cellulose onto
said conveyor belt and said uncured mat;

conveying said uncured mat into a mixing apparatus and
forming an uncured mixed mat;

conveying said uncured mixed mat into a curing oven.

39. The process for making a sound absorbing material of
claim 38, said metering of said organic and inorganic man-
made fibers at a rate of between about 250 and 2000 pounds
per hour.

40. The process for making a sound absorbing material of
claim 38, said metering of said co-binder at a rate of
between about 65 to about 900 pounds per hour.

41. The process for making a sound absorbing material of
claim 38, said metering of said cellulose at a rate of
between about 10 and 1000 pounds per hour.

42. The process for making a sound absorbing material of

claim 38, said curing oven having an operating temperature of between about 400 and 600 degrees Fahrenheit.

43. The process for making a sound absorbing material of claim 38, said curing oven having an operating temperature of between about 200 and 300 degrees Fahrenheit.

44. An improved sound absorbing material, comprising:

a blended matrix of a polyester fiber and a textile fiberglass fiber;

said matrix further including a co-binder blended with said polyester and fiberglass fibers and a fibrous cellulose.

45. The sound absorbing material of claim 44, said matrix being a ductliner material.

46. The sound absorbing material of claim 44, said matrix being a molded material.

47. The sound absorbing material of claim 44, said sound absorbing material having a thickness between 2 millimeters

and 150 millimeters.

48. The sound absorbing material of claim 44, said polyester being reclaimed.

49. The sound absorbing material of claim 44, said fiberglass having a length of between 12 millimeters and 130 millimeters.

50. The sound absorbing material of claim 44, said fiberglass being a textile fiberglass having a diameter of about 5 microns.

51. A process for making a sound absorbing material, comprising the steps of:

- a. forming an uncured mat of metered polyester fibers and textile fiberglass fibers on a chain conveyor belt having a negative pressure thereon;
- b. metering a preselected amount of thermosetting resin and fibrous cellulose on said uncured mat;
- c. mixing said fiberglass and said polyester with a

mixing-picker apparatus;

d. conveying said mat through a curing oven to set a
desired proportion of thermosetting resin and
forming an at least partially cured mat;

e. cooling said mat;

f. cutting said mat to a desired size; and,

g. molding said mat to a desired shape.

52. The process for making a sound absorbing material of
claim 51, further comprising the step of applying a porous
polyolefin film to at least one side of said cured mat.

53. The process for making a sound absorbing material of
claim 51, said molding step being a hot molding process.

54. The process for making a sound absorbing material of
claim 51, said molding step being a cold molding process.